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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/270,688	03/16/1999	DANIEL DAVID YOUNG	2407-0004	2820

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EXAMINER	
CADUGAN, ERICA E	
ART UNIT	**PAPER NUMBER**
3722	

DATE MAILED: 08/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/270,688	YOUNG ET AL.	
	Examiner	Art Unit	
	Erica E. Cadugan	3722	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 June 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3,4 and 6-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,4 and 6-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 112

2. Claims 1, 3-4, and 6-12 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The amendment of September 19, 2005 added the limitation to independent claim 1 that the "data is not calibrated". However, this limitation does not appear to be supported by the specification as originally filed.

Specifically note that in the present invention, it appears that the specification as originally filed teaches that the signal or data in the present application is "smoothed" and/or "transformed" and/or "calibrated" (see at least pages 15-16 of the present specification, for example, as well as Figure 26 and claims 5-6 as originally filed, and also page 8, the paragraph beginning "[T]he laser scanning units use a ..."). There does not appear to be any teaching in the specification as originally filed of a process that uses any "non-calibrated" data.

Examiner notes that on page 8 of the remarks section of the response filed 6/8/2006, Applicant states that "as disclosed in the application as originally filed, the data is not calibrated until it reaches the computer or microprocessor". Note that whether the data isn't calibrated until it reaches the computer or microprocessor is immaterial to the fact

that, as taught in the specification and as admitted by Applicant as just described, the data is calibrated. Thus, the claim limitation of claim 1 that sets forth that "said data is not calibrated" does not have support in the specification as originally filed. Note that the claim (1) does not set forth any time period for the calibration, i.e., does not set forth that the data is not calibrated by the scanning device, but is later calibrated, but instead sets forth merely that the "data is not calibrated".

Claim Rejections - 35 USC § 103

3. Claims 1, 4, 6, and 7-29, any of which were rejected under 35 USC 112 above are as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,449,256 (Sundman) in view of U.S. Patent No. 5,712,803 (Garuet-Lempirou).

Sundman teaches a system for use in an office environment for milling custom shoe insoles, where this system includes a foot contour measurement machine (column 1, lines 42-43) and a mill 10 for machining the insoles. The mill has a disk drive 15 for receiving the foot contour measurement data, which then controls the x, y, and z, movements of the milling head 21 to produce a desired insole contour (column 5, lines 27-34). To mill the insole, an insole blank 11 is mounted to a support tray 12. The relative motion in x, y, or z directions between the milling cutter and the insole blank may be achieved by moving the insole blank/tray, and/or by moving the milling head (column 3, lines 25-37). Motion of the milling head 21 and/or the motion of the tray 12 is controlled by stepper motors 51, 55, and 510 that act in response to the data inputted from the contour measurement machine. Sundman's milling station also includes a particle control system with positive-pressure air flow (column 7, lines 39-41) generated by fans, so that particles may be collected in tray 14 and disposed of. The air and the particles flow

through channels 67-69, which, being enclosed and having higher pressure than that of the outside air, constitute plenums. The entrance 62 to these plenums is disposed in the vicinity of the milling assembly (column 7, lines 61-62). The velocity of the air flow through each channel is inversely proportional to the volume of air flowing through each channel (column 8, lines 35-41). The air flow velocity is sufficient to eliminate particulate flux from the milling cavity (column 7, lines 45-48). According to the current application on page 7, line 24, the velocity of the air flow must be low enough to grab the debris particles, which Sundman's velocity is.

Sundman does not teach a laser scanner to scan the foot, but instead teaches a device having an array of parallel pins, each pin displaceable longitudinally such that when a foot is pressed against the pins, the longitudinal displacement of the pins represents the contour of the foot. Sundman also does not teach that the computer (with disk drive 15) is located in a lower portion of the milling machine stand, but instead teaches that it is located approximately in the middle portion of the stand (see Figure 1A).

Garuet-Lempirou teaches a device for scanning the sides and undersurface of a foot 4 (Figure 1) that is set on transparent glass base 40 (Figure 1 and column 5, lines 57-58, and column 1, lines 62-63). Garuet-Lempirou's device utilizes laser-generating sensors (column 2, lines 30-32 and column 3, lines 16-17 and 31-37) Ca1 through Ca4 (column 4, line 52 and Figure 1). The sensors are attached to a cradle 2 that moves in translation along longitudinal foot axis 4 (column 5, lines 65-67 and Figure 1). The cradle 2 has vertically-extending sides connected by a horizontally-extending portion, and is shaped so that the vertically-extending sides are outside of the width of base 40 and that the horizontally-extending portion is below base 40 (Figure 1 and

column 6, line 41). Thus, regarding claim 14, the sensors disposed on the cradle beneath the base 40 are movable beneath the base 40 (see Figure 1 and column 6, lines 39-44).

Regarding the limitation in claim 1 that the "data is not calibrated", as best understood from Applicant's remarks on page 8 of the response of 6/8/2006 that "the data is not calibrated until it reaches the computer or microprocessor" and that "[i]n the scanning phase the data points are gathered as either individual data points or a set of data that are thereafter processed against the calibration data table as an intrinsic calibration...", Examiner will address this limitation as best understood with respect to Applicant's remarks.

Note that the Garuet-Lempirou reference teaches that the data points that are measured or "seen" by the cameras must be correlated with an absolute frame of reference in order to determine the exact shape of the measured foot (col. 6, lines 45-49, for example), and details the steps of such calibration and explicitly states that the "translation from one system of coordinates to the other is effected by means of a conventional matrix calculation" (col. 7, lines 42-44) and that "the acquired and digitized characteristics of the plate 40 are converted by the calibration process into an absolute frame of reference and stored in memory" (col. 10, lines 4-6), and further teaches that "the data successively acquired and digitized (section planes S_i) can therefore be converted into absolute coordinates knowing the position of the sensor holder 2 along the axis Δ during acquisition" (col. 10, lines 22-25). In other words, the "calibration" described in detail from col. 6, line 35 through col. 10, line 37 is a determination of a calibration matrix or "calibration data table", which table provides information on how much each measured

data point needs to be adjusted to be accurate, and which "calibration data table" is used to convert the measured data, after the moment of measurement, into an accurate measurement that "correlates with" (via the calibration data table) the measured data point(s).

Thus, the gathered data taught by Garuet-Lempirou is "not calibrated" until it can be correlated with the calibration data table or matrix as described above, thus, as best understood, meeting the limitation in claim 1 that "said data is not calibrated".

Similarly, regarding claims 13 and 17, note that the data as "gathered" is thus "non-calibrated data" (non-calibrated until it is "correlated" with the calibration matrix or data table described previously), and "directly correlates" (via the calibration matrix) to "accurate 2-dimensional distance measurements between the at least one laser scanning unit and the undersurface of the foot" as claimed.

Regarding claim 16, the plane or "fan" of laser light extends through the transparent base 40 as just described. Also regarding claims 16 and 18, Garuet-Lempirou's "transparent material" or "glass" for base 40 inherently includes tempered safety glass (column 5, lines 57-58, and column 1, lines 62-63).

Regarding claim 19, note that the sensors or "laser scanning units" Ca1 through Ca4 are disposed so as to be movable along the sides and base (Figure 1).

Regarding claim 21, the entire scanning device of Garuet-Lempirou (shown in Figure 1) acts as an input device for inputting information about the customer, i.e., the three-dimensional map of the customer's foot, to a signal processing system 3 having display Visu (Figure 2 and column 5, lines 7-10, 16-18, and 25-37). Garuet-Lempirou further teaches that the data acquired

via the foot-scanning device may be supplied to and used to control automatic processing devices (column 6, lines 30-35).

It is noted that the entire purpose of Garuet-Lempirou's scanning device is to "determine data which directly correlates to distance measurements between the at least one laser scanning unit and the underside of the foot" as claimed (see columns 4-6 and col. 10, lines 10-25, for example, also columns 1-2).

Additionally re claim 16, it is noted that the foot in Garuet-Lempirou is being "directly" measured (see Figure 1, for example).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have replaced the longitudinal-pin-type foot contour measurement machine taught by Sundman with the laser scanning foot contour measurement device taught by Garuet-Lempirou for the purpose of being able to acquire three-dimensional foot data that takes into account the entire measured surface area rather than just the selected points where the longitudinal pins of Sundman's device contact the foot, thus increasing the accuracy of the measured foot data, thus allowing a better fitting shoe insole to be manufactured, as would be readily understood by one of ordinary skill in the art.

Regarding the placement of the control device in the milling stand, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have placed this control device wherever was desired or expedient, particularly since moving the device from the middle portion of the stand to the lower portion of the stand would not affect the operation of Sundman's device, since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70.

4. Claim 3, as best understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,449,256 (Sundman) in view of U.S. Patent No. 5,712,803 (Garuet-Lempirou) as applied to claim 1 above, and further in view of Applicant's admission of prior art (AAPA) on page 8, lines 11-15. Sundman and Garuet-Lempirou disclose all of the elements as claimed as described above, except that Garuet-Lempirou is silent as to whether or not the laser is non-focused. In the specification on page 8, lines 11-15, Applicant admits that the specifics of the laser technology used in the laser scanners is known in the art. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have scanned the necessary portions of the foot with a non-focused "fan-shaped" line of laser light as this is known laser technology according to AAPA, and thus little trouble-shooting would be involved in using a known technology.

Response to Arguments

5. Applicant's arguments filed June 8, 2006 have been fully considered but they are not fully persuasive.

6. Examiner has withdrawn the 112, 1st paragraph new matter rejection of claims 13 and 17 (and the claims dependent thereon) based on Applicant's remarks, noting that the specification does teach a "means for gathering non-calibrated data", i.e., the means gathers the data in a non-calibrated form. However, Examiner notes that the 112, 1st paragraph rejection of claim 1 (and the claims dependent thereon) is still applicable since the specification does not teach that the "data is not calibrated" (i.e., ever) as set forth in claim 1 (see the above 112 rejection for further detail).

Note that Applicant asserts that the specification teaches that calibration does not occur until "AFTER" the data is gathered. However, claim 1 does not set forth that "calibration does not occur until after the data is gathered", but instead sets forth that no calibration at all occurs, i.e., sets forth that "the data is not calibrated".

Additionally, in light of Applicant's remarks, the Sundman/Garuet-Lempirou references have been applied to the claims as set forth above. Details particularly relevant to the issue of the calibration limitations have been set forth in **bold** lettering.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erica E. Cadugan whose telephone number is (571) 272-4474. The examiner can normally be reached on M-F, 6:30 a.m. to 4:00 p.m., alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Monica S. Carter can be reached on (571) 272-4475. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Erica E Cadugan
Primary Examiner
Art Unit 3722

eec
August 15, 2006